National Institute of Environmental Health Sciences

The impact of climate change on the parasites and infectious diseases of aquatic animals

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Abstract:

Climate change is predicted to have important effects on parasitism and disease in freshwater and marine ecosystems, with consequences for human health and socio-economics. The distribution of parasites and pathogens will be directly affected by global warming, but also indirectly, through effects on host range and abundance. To date, numerous disease outbreaks, especially in marine organisms, have been associated with climatic events such as the El Nino-Southern Oscillation. In general, transmission rates of parasites and pathogens are expected to increase with increasing temperature. Evidence suggests that the virulence of some pathogens and parasites may also increase with global warming. The effects of climate change on parasites and pathogens will be superimposed onto the effects of other anthropogenic stressors in ecosystems, such as contaminants, habitat loss and species introductions. This combination of stressors may work cumulatively or synergistically to exacerbate negative effects on host organisms and populations. Climatic effects on parasites and diseases of key species may cascade through food webs, with consequences for entire ecosystems.

Source: http://www.oie.int/doc/ged/D5501.pdf

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Quality, Temperature

Food/Water Quality: Pathogen

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Freshwater, Ocean/Coastal

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Cryptosporidiosis, Giardiasis, Vibrioses, Other Diarrheal Disease

Foodborne/Waterborne Disease (other): Naegleria fowleri; typhoid fever

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content